

An aerial photograph of a vast, dense forest. A river or stream winds through the center of the forest, reflecting the sky. The trees are mostly green, with some showing early autumn colors. The perspective is from a high angle, looking down on the canopy.

MISSOURI. Conservationist

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Hunting Fever

Even though summer is in full force, I've been thinking about my favorite preparation of deer roast. Mary Werdenhouse is a family friend whose mouth-watering recipe fills the kitchen with such

delicious aromas it's hard to wait for dinner. So, if I'm going to satisfy this hunger this fall, I had better use August to prepare for a successful deer hunt.

Preparation is important no matter what game you pursue. Finding the right place and scouting the area before the season greatly increase your chance of success. Honing firearms marksmanship and archery skills are also necessary preseason activities. Above all, one of the best ways to get prepared is to complete a hunter education course taught by knowledgeable and dedicated instructors.

Hunting is steeped in our state's culture and tradition, and nearly a half million hunters enjoy their sport in Missouri each year. Deer and turkey hunting draw the greatest numbers, but many are equally enthusiastic about doves, waterfowl, quail, furbearers and other small game.

In my hometown newspaper, *The Current Local*, photos of successful hunters routinely appear. I especially enjoy the pictures of excited girls and boys showing off their deer and turkey harvests. Special youth hunting seasons are now so popular that Missouri leads the nation in engaging the next generation in hunting. The credit goes to the thousands of adults who mentor kids to experience hunting in a safe and responsible manner.

Hunters in Missouri also aid society's less fortunate. Last year, 6,500 hunters donated a record 322,469 pounds of venison to the Share the Harvest program. The program uses meat processors and food bank networks to distribute this healthy protein to families across the state.

Much of our modern conservation movement started with determined hunters seeking to protect and manage wildlife.

Hunters were the first to recognize the decline in habitat and wildlife populations, and, to change that, they were willing to pay

license fees for professional management and hunting regulations based on sound science. In Missouri, conservation success began in 1936 with the voters' resounding approval of an initiative petition to create a citizen Conservation Commission. The effort was spearheaded by a group known as the "Restoration and Conservation Federation of Missouri," led by E. Sydney Stephens, an ardent hunter from Columbia, who later became the first chairman of the new Commission.



E. Sydney Stephens

Many writers have tried to define the reasons why we hunt, but the motivation to hunt and the satisfaction from the experience is a uniquely individual matter. Some prefer a solitary event; others a social adventure with friends and family. Clearly, though, hunting provides a critical connection with the outdoors and stirs a deep passion in many that participate.

For me, the crisp autumn air is sharper when punctuated by that moment when the game is close, your heart rate is up and a clear shot is imminent. It's particularly satisfying to hunt on land where our family has worked hard to manage for wildlife and to share the bounty of the hunt at the family table.

Start preparing for your hunting adventures. Take advantage of the Department's shooting ranges, publications and informative programs. And if deer hunting is on your agenda, try celebrating your hunt with Mary's recipe for deer roast (see page 2 for the recipe).

John Hoskins, director









OUR MISSION: *To protect and manage the fish, forest and wildlife resources of the state; to serve the public and facilitate their participation in resource management activities; and to provide for all citizens to use, enjoy and learn about fish, forest and wildlife resources.*



On the cover and left: Photographer David Stonner captured these images of Duck Creek Conservation Area, part of Mingo Basin Conservation Opportunity Area. Duck Creek CA is one example of Missouri's hardwood bottomland forests. This habitat is the focus of this year's Endangered Species Run and the article *Lowland Treasures* by Carol Davit starting on page 14.

NextGEN

This section reports on goals established in *The Next Generation of Conservation*. To read more about this plan, visit www.missouriconservation.org/12843.

- 5  PLANTS & ANIMALS
- 6  PLACES TO GO
- 7  COMMUNITY CONSERVATION
- 8  OUTDOOR RECREATION
- 10  CLEAN WATER
- 11  HEALTHY FORESTS
- 12  LANDOWNER ASSISTANCE
- 13  CONSERVATION EDUCATION

FEATURES

- 14 **Lowland Treasures**
by Carol Davit
The wonderful creatures and features of bottomland hardwood forests and swamps.
- 22 **Connecting Kids With Nature**
by Carol Mahan and Chris Schmidgall, photos by David Stonner
How an outdoor classroom teaches science, math and a whole lot more.
- 26 **'Twas the Night Before Hunting Season**
by Warren Rose
Hunting is as exciting as a holiday, but we have to act responsibly to protect ourselves and our sport.

MISCELLANY

- 2 **Letters**
- 4 **Ombudsman**
- 4 **On the Web**
- 4 **On the TV**
- 32 **Hunting and Fishing Calendar**
- 32 **Contributors**
- 33 **Behind the Code**
- 33 **Agent Notes**
- 33 **Time Capsule**



CHILD'S PLAY
John, I just cannot put my *Missouri Conservationist*, issue 6, June 2007, away to the shelf without telling you how great your article is. [Note to Our Readers; *The Future of Child's Play*].

I wasn't raised on a farm, but early on I had a real love for the outdoors, and the majority of my seven sons acquired that same great feeling. Your article made me feel that, if more families

were at least exposed to the factors you so beautifully describe, we would have young people more in tune with the way the world should be.

**Ernie Dunn, Kansas City
Conservation Commissioner 1977-1983**

Mr. Hoskins, I'm the executive director of the Kirksville Area Chamber of Commerce, and I have met you on several occasions. I'm sure you don't remember me, but I wanted to tell you how much I enjoyed your June article in the *Conservationist* magazine.

I now have two toddlers and we are consumed with enjoying the outdoors. Fortunately, we live on 20 acres of an almost 1,000-acre family farm, and our children have all of the benefits that you detailed of your youth in the article.

Alisa Kigar, via Internet

Having just received my issue of the magazine, I must agree completely with your observation of childhood play. My eldest son (I have three, equally near and dear to my heart), Jon, at age 3 had already chosen his career—discovering the wonders of the earth—in his own backyard. It

amazed me that he could spend so much time digging ditches and making bridges for his little trucks and cars.

In college, Jon chose geology-geography and I began to worry that he would never find a job! Little did I know! Three weeks after graduation he joined Peabody Engineers to do soil testing for the power plant on the Wabash River near Vincennes, Ind. (referred to in a recent issue of *National Geographic*). He is now the manager at WIPP in Carlsbad, N.M., making sure that the solid nuclear waste is properly disposed of, still interested in taking care of God's earth. Child's play started a career.

Thank you for the beautiful magazine. After my family reads it, I've been passing it on to a great-niece who home-schools her three daughters. Their child-play will be in several acres of "wilderness" near Willow Springs, having relocated here from Oregon.

Elizabeth Hoff, Mountain View

BEAR OF A JOB

Tuesday afternoon a black bear showed up in my backyard. I called and left a message on agent James Dixon's cell phone. He called me right back and gave me advice on how to deal with the bear. He followed up the next day with two phone calls and came out last night to sit and watch to see if the bear would return. I just wanted to say how appreciative I am of his demeanor, kindness and diligence about his job.

It was very exciting to see a live Missouri bear, and I wanted to pass on kudos about James. I also appreciated my *Missouri Conservationist* magazine as it had the numbers I needed when I was frantically searching the phone book.

Trudy Watford, Oldfield

MARY'S DEER ROAST

This is the recipe mentioned in this month's Note to Our Readers on the inside front cover.

Ingredients: 1 can beef gravy, ½ cup Italian dressing, 1 package dried beef onion soup mix, 1 can mushrooms.

Soak roast in milk overnight; rinse and rub in garlic powder to taste. Mix above ingredients and pour over roast. Cover and bake one hour for each pound of meat at 300 degrees. Cool, slice thin, and put back in juice to serve.



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Reader Photo BLUE NOTES

The great blue heron (*Ardea herodias*) is a large wading bird commonly seen foraging for fish and other aquatic animals in shallow waters during the spring, summer and fall. They breed colonially in bottomland forests and swamp areas, building stick-nests in the crowns of large trees. Read *Lowland Treasures*, page 14, for more on these important habitats. Photo by Kevin Ferguson of Washington.

This month check out our featured Web pages, or go online anytime to learn more about conservation at www.missouriconservation.org.



FALL HUNTING

www.missouriconservation.org/7442

The Fall Deer and Turkey Hunting Information booklet has been updated and is online. It is available in standard HTML, as well as Adobe Reader PDF format.



NUISANCE WILDLIFE

www.missouriconservation.org/7852

While many people enjoy seeing and living near wildlife, there are times when wild animals get “too close.” Learn how to handle these nuisance species.



DOVE HUNTING


www.missouriconservation.org/7469

Dove season opens with summer on the wane. Last year the Department provided 2,800 acres of managed dove areas on 800 fields located on 99 conservation areas.



ASK THE OMBUDSMAN

Q ■ A bug has invaded our yard. It looks like a lightning bug, but it's bigger, and it has red markings. Do you know what kind of bug we have?



A: It sounds like you're describing a boxelder bug. Though harmless, they congregate in large numbers and can become a problem in homes. They are associated with boxelder trees and feed on the leaves and fruit of trees in the maple family.

There are a number of bugs that may cause problems for homeowners due to their swarming habits. Asian lady beetles are notorious for invading homes as they seek protection from winter. Here's a Web site with more information on these critters: [**www.missouriconservation.org/news/1998/bugs.html**](http://www.missouriconservation.org/news/1998/bugs.html).

Hackberry is another tree with an accompanying insect. Hackberry psyllids are harmless, but annoying due to actions similar to boxelder bugs and lady beetles—congregating, often in homes.

If removing the host tree is too drastic a remedy, insect-proofing the house—screening the vents, caulking cracks around windows and doors, etc. is an alternative. Insecticides have little impact on lady beetles and psyllids. Here are some helpful sites on boxelder bugs and hackberry psyllids.

<http://extension.missouri.edu/explore/agguides/pests/g07360.htm>

www.extension.umn.edu/distribution/horticulture/DG0998.html

www.ipm.iastate.edu/ipm/iiin/node/141

<http://extension.missouri.edu/explore/agguides/pests/g07354.htm>

Ombudsman Ken Drenon will respond to your questions, suggestions or complaints concerning Department of Conservation programs. Write him at P.O. Box 180, Jefferson City, MO 65102-0180, call him at 573-522-4115, ext. 3848, or e-mail him at Ken.Drenon@mdc.mo.gov.

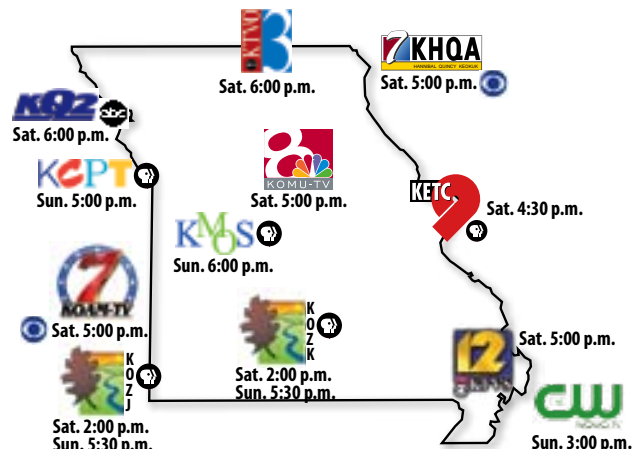
on the
TV

For additional show information and video clips,
be sure to visit

www.missouriconservation.org/8726



Television
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nature
intended!





Species of Concern

Ozark Big-eared Bat



Common name: Ozark big-eared bat

Scientific names: *Corynorhinus townsendii ingens*

Range: Western U.S. & cave regions of the Eastern U.S.

Classification: State and federally endangered

To learn more about endangered species: www.missouriconservation.org/8227

THIS STRANGE-LOOKING creature's name comes from the naturalist who first described it, John K. Townsend, M.D., and from its oversized ears, which reach the middle of its 4-inch body when folded back. During the winter it stays in caves and old mines. In summer, it may be found in rocky crevices, beneath loose tree bark and in hollow trees. It navigates at night by emitting high-pitched sounds and listening for echoes from solid objects. Three big-ears banded at a cave and released 28 miles away appeared back at the banding site in two days. Moths are the big-ear's main food. Wild individuals are known to have lived 16 years. The much less common Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) has been found in Cape Girardeau and Stone counties.

Grubby Fish

To eat or not to eat depends on what you can stomach.

Do you ever find little critters in a fish you caught and wonder if the flesh is safe to eat? The answer is yes, if you aren't too grossed out. Parasitic worms known as flukes are fairly common in bass, bluegill and other sunfish. In their larval form, they appear as black spots on a fish's skin. Mature flukes are white or yellow grubs the size of peas. They live inside the fish's muscles. They are not dangerous to people as long as fish are cooked thoroughly.



A Blaze of Glory

Blazing star lights up late-summer prairies.

The wild explosion of brilliant petals and stamens that marks these prairie wildflowers reminded settlers of sunbeams. Members of this genus—*Liatris*—range from 2 to 5 feet tall. Although each produces spikes of rose-purple blooms, they have very different appearances. The flowers of prairie blazing star (*L. pycnostachya*) look like decorative bottlebrushes. Rough, scaly and eastern blazing star (*L. aspera*, *squarrosa* and *scariosa*) flowers look much more like those of thistles. Hardy and drought-resistant, these perennials make stunning displays of color in spots where tender loving care is not an option. In fact, over-watering or fertilization may reduce blazing stars' vigor. Butterflies love these flamboyant blossoms, which appear in July and August. Visit www.grownative.org.





Refresh With a Nature Break!

State Fair native plant garden and aquaria

Conservation Department offerings at the Missouri State Fair Aug. 9 through 19 cover both wild plants and animals.

Stop and admire hardy, low-maintenance native ferns, grasses and wildflowers, such as royal catchfly, rose verbena and rattlesnake master, growing around the building. Escape the midday heat while touring aquaria holding huge blue and flathead catfish and other native fish, including bass, crappie, bluegills, spotted gar, carp, drum, buffalo and suckers. Other aquatic creatures, including mussels, turtles and amphibians will round out the watery show. The Conservation Pavilion is at the south end of the fairgrounds.



of a year, you can take part in hands-on programs to learn everything from fishing to how Lewis and Clark's Corps of Discovery cooked and what they ate during their two-year odyssey. For more information about the Discovery Center and upcoming programs there, visit www.missouriconservation.org/2305, or call 816-759-7300.

Wild Discoveries

Year-round adventures at the Discovery Center in KC

Looking for something wild and natural to do in Kansas City? Try visiting the Anita B. Gorman Conservation Discovery Center at 47th Street and Troost Avenue in downtown Kansas City. Start with a relaxing walk on nearly half a mile of trails surrounded by postage-stamp wetlands, woodlands and prairie, as well as hummingbird and butterfly gardens. Step inside the "green design" building and learn how architecture and nature can work together. The Discovery Center offers programs year-round on topics from natural gardening to history and outdoor skills. Over the course

Trail Guide



Rockwoods Reservation



IN THE 1700s, fur traders traversed Rockwood Reservation on their way to and from St. Louis. Early settlers established rock quarries and lime kilns, remains of which are still visible today. The area has also been designated by Audubon Missouri as an Important Bird Area, due to the abundance and diversity of birds present, making it an ideal spot for birdwatchers. Three of the area's trails offer interpretive brochures explaining the area's natural and cultural history. These are the Trail Among the Trees (1.5 miles), the Wildlife Habitat Discovery Trail (.1 mile) and the Rock Quarry Trail (2.2 miles). The .1-mile Wildlife Habitat Discovery Trail is accessible to visitors using wheelchairs, while the Turkey Ridge Trail (2 miles), the Lime Kiln Loop (3.2 miles) and the Green Rock Trail (3.6 miles) are more rugged and primitive. The Conservation Education Center offers displays and interpretive programs.

Trail: Seven trails totaling more than 12 miles

Unique features: Historic mine sites and lime kilns

Contact by Phone: 636-458-2236

For more information: www.missouriconservation.org/a5405



TAKING ACTION

Youth Conservation Corps

**Group featured:** Youth Conservation Corps**Group mission:** Preserve Missouri's outdoor resources and connect youngsters with nature.**Group location:** Cape Girardeau, Sedalia and Springfield

FISH, FOREST, WILDLIFE and teens benefit from the Youth Conservation Corps. The educational work program employs teens to work on conservation projects. YCC is modeled after the Depression-era Civilian Conservation Corps which employed young men to address the destruction and erosion of natural resources.

The Department of Conservation began YCC in southeast Missouri in 2000. Boys and girls ages 15 to 19 work on projects ranging from trail building and tree planting to assisting with fisheries research. In addition to improving our outdoor resources, YCC connects teens with nature.

YCC has expanded to Springfield and Sedalia, and plans are in the works to begin programs in St. Louis and St. Joseph. The program is funded by the Department of Conservation, a federal program and partners such as the Missouri Mentoring Partnership, East Missouri Action Agency and Lakes Country Rehabilitation Services.

Industry Involvement

Bait dealers help fight exotic invasions.

Missouri bait dealers are at the forefront of efforts to protect state waters from exotic, invasive species. Most work to avoid introducing exotics by selling only native species for bait and educating the public about the damages caused by invasive species through the bait bucket sticker program. Many bait dealers attach blaze orange Don't Dump Bait! stickers to every bait bucket sold to remind anglers that invasive species can ruin fishing opportunities by damaging native aquatic species and their habitat.



Collaborative School

Collaborative School has a No MORE Trash! cleanup.

The learning experience at the Collaborative School in Webster Groves includes lessons on being good stewards of our natural resources. The school helps at-risk students improve their grades and find direction in life. A No MORE Trash! cleanup was among the community service activities teachers Kevin Tucker and Dan Davinroy recently conducted to enable students to help improve the environment. The students, teachers and school's administrative and support staff removed 40 bags of trash from a quarter-mile stretch of Deer Creek in suburban St. Louis. In addition to teaching the students that teens can help protect the environment, the cleanup introduced many of the youngsters to wildlife that can be found near their homes. To learn more about the No MORE Trash! program, visit www.nomoretrash.org





New Deer Permit for Youth

Firearms antlerless permits in participating counties

Youth ages 6 through 15 who are not hunter education certified will have more opportunities to hunt deer in Missouri. This fall they can purchase Youth Firearms Antlerless Deer Hunting Permits. The new permit entitles a youngster to harvest one antlerless deer during any portion of the firearms deer season. It must be used in the immediate presence of a properly licensed, hunter education certified adult. The \$7 permit is valid in counties where antlerless permits may be filled. For details on the new permit, read the Fall Deer and Turkey Hunting Regulations and Information booklet.



Wheelin' Exclusive

Dove hunt for hunters with disabilities

Hunters with disabilities can enjoy exclusive use of Ten Mile Pond Conservation Area Sept. 2 at the National Wild Turkey Federation and Department of Conservation sponsored Wheelin' Sportsmen dove hunt. NWTF volunteers serve as guides and help hunters get to and from the field and retrieve downed birds. Hunters should arrive at Ten Mile Pond CA headquarters at 6 a.m. with their small-game and migratory bird hunting permits and hunter education certification cards. For reservations, call Larry Neal, 573-334-8881.



Missouri's dove hunting season begins Sept. 1. For details on season regulations, conservation lands where you can hunt and the dove status report, visit www.missouriconservation.org.

Opportunities for Everyone

Scout it Out



Name: Columbia Bottom Conservation Area

Location: Columbia Bottom Conservation Area is in North St. Louis County. Take the Riverview Drive exit from I-270, then go north on Riverview about 2.5 miles.

For more info: www.missouriconservation.org/2930 and search "Columbia Bottom"



COLUMBIA BOTTOM CONSERVATION Area is a shining example of the Department of Conservation's commitment to ensure that persons with disabilities can enjoy the outdoors. It features the disabled-accessible Howard and Joyce Wood Education and Visitor Center, hiking trail system and much more.

Located at the confluence of the Missouri and Mississippi rivers, Columbia Bottom is ideal for big-river fishing. A wide, gradually sloping, concrete sidewalk provides easy access to the disabled-accessible Missouri River fishing pier.

The area's eight exploration stations enable you to view and learn about the many habitats within the CA. A paved trail to the exploration stations includes several entry points to let visitors set the length of their excursions. An accessible deck offers a view of the confluence. Plans are in the works to add an accessible wetland boardwalk and hunting blind.

Get details on conservation lands throughout Missouri that provide quality outdoor opportunities for persons with disabilities from the free booklet Disabled-Accessible Outdoors. To receive a copy by mail, write to MDC Disabled-Accessible Outdoors, P.O. Box 180, Jefferson City, MO 65102-0180 or e-mail pubstaff@mdc.mo.gov.



Trails on Conservation Areas

Nature Centers offer naturalist and self-guided hikes.

Take an urban nature hike at a conservation nature center. The Department of Conservation's five nature centers have many miles of trails you can walk to enjoy the outdoors.

Each nature center offers naturalist-guided hikes on which participants learn about native plants and animals. Self-guided trails include:

- Burr Oak Woods' Discovery Trail which features interpretive signs and an overview of a mature oak-hickory forest.
- The Cape Girardeau center's "White Oak Trace" has stunning views of the rolling river hills, sinkholes and deep hollows of southeast Missouri.
- Powder Valley's Tanglevine Trail includes interpretive signage and is designed for persons with mobility impairments.
- Runge nature center trail offerings include the Naturescape Trail, which provides examples of how to make the most of your yard with native and cultivated plants.
- Springfield nature center trails traverse nearly 80 acres of the Missouri Ozarks and showcase nine different natural communities.



Flock of Birders

Missouri Bird Conservation Conference Aug. 24-25

Find out how you can help lessen the negative impact of exotic, invasive species on native birds by attending the Missouri Bird Conservation Conference Aug. 24 and 25 in Columbia. The conference theme is "Dealing with Exotics." There will be presentations on the impacts of exotic, invasive species and discussions on building habitat-based partnerships to address those issues. The Missouri Bird Conservation Conference is sponsored by the Missouri Bird Conservation Initiative, a partnership of more than 40 organizations that care about birds. For information on the conference or MOBCI, visit www.mobci.org, or call 573-447-2249.

FEATHERED FASCINATION

Turkey Vultures



Turkey vulture

THE TURKEY VULTURE could be the Rodney Dangerfield of the bird world. It gets no respect. People tend to avoid it because of its looks and feeding habits, but those who take time to learn about turkey vultures will find the birds play an important role in nature and are an interesting species to study.

Turkey vultures are named for their featherless red heads that resemble the heads of wild turkeys. The vulture's naked head aids in its personal hygiene, preventing the problem of feathers getting soiled when it feeds. Its body feathers are blackish-brown. The flight feathers on its wings appear silvery-gray underneath. The bird's ivory-colored, hooked beak is useful for tearing flesh.

Some call turkey vultures nature's garbage collectors because they cleanly and efficiently dispose of dead animals. They can eat up to 25 percent of their body weight. The non-aggressive birds have good eyesight and, unlike most birds, a well-developed sense of smell that helps them locate food.

Turkey vultures are among the most graceful birds in flight. They are experts at static soaring, the same flight technique used by hang gliders. Large, broad wings help them soar for long periods. Air rising from the sun-warmed earth and updrafts above hills and bluffs keep vultures aloft for hours without a single wing beat.



"All-Terrain" Vehicles

Their name gives a false impression.

If you own an "all-terrain" vehicle, you can go anywhere, right? Wrong.

ATVs are great tools for some jobs, such as creating food plots in remote spots and hauling deer out of the woods during hunting season. On conservation areas, however, ATVs may be operated only in parking lots and on improved interior roads, and only if they are licensed. Missouri law also prohibits driving ATVs in streams, except when fording at customary road crossings or for agricultural purposes on land owned by the ATV operator. Operating ATVs illegally can bring fines and suspension of hunting and fishing privileges. The same laws apply to other off-road vehicles.



Volunteers are welcome, whether they come as individuals or groups. Water-borne participants must bring their own canoes or boats. Ground crews will comb river banks removing "litter" that includes everything from plastic cups to old tractor tires. Trash bags and work gloves are provided.

After the cleanup, join a picnic celebration at one of the staging areas, which include Greentree Park in Kirkwood, Arnold City Park, George Winter County Park in Fenton, Route 66 Park in Eureka, Meramec State Park east of Sullivan, Cedar Hill Access in Cedar Hill, the Beaufort Lions Club in Beaufort and the River Rats Landing in St. Clair. Food and drinks are provided.

For more information, visit www.openspacecouncilstl.org/OCS.htm, or contact the St. Louis Region Open Space Council, 636-451-6090, info@openspacecouncilstl.org.

Operation Clean Stream

Join the fun Aug. 25 for a 40th anniversary celebration.

One of Missouri's oldest, biggest environmental events turns 40 this month, and the celebration will be one to remember. Operation Clean Stream 2007 will take place on Aug. 25, with 2,000 volunteers converging to remove litter from the Meramec River and its tributaries—the Big, Bourbeuse, Courtois and Huzzah rivers.

Stream Team



DeSoto Car Shop



RALPH DODSON COULD have adopted a pristine Ozark river, but those streams don't lack for attention. Besides, cleaning up a faraway river would not have made his work environment any more pleasant. That's

why Dodson and his coworkers settled on a ditch running through the Union-Pacific Railroad's DeSoto Car Shop and some frontage along Joachim Creek.

The shop rebuilds railroad cars. The ditch running through the facility empties into Joachim Creek, a tributary of the Meramec River. It collects lots of litter from city streets, and keeping it clean prevents trash from reaching the Meramec.

"I had a lot of encouragement from the company," says Dodson, whose job as facility coordinator includes environmental considerations. "We have an easy way to get rid of the trash in the company's dumpster, and it makes us a better place. We like doing it."

Stream Team #: 1995

Date formed: 2002

Location: Jefferson County

For more info about Stream Teams: www.mostreamteam.org



Our Glorious Forests

LaBarque Creek Watershed



Size: 13 square miles

Location: Jefferson County near St. Louis

Importance: Watershed of exceptionally high quality and diversity; forest, woodland and glade habitats support songbirds and rare plants and animals; serves as a prime conservation opportunity area

To help preserve LaBarque Creek: E-mail or call Tracy Boaz at Tracy.Boaz@mdc.mo.gov or 314-301-1506, ext. 2264.



ONE OF THE most vital services our glorious forests provide is clean water. Without forests, streams become simple ditches, unable to clean and cool water or slow its flow. The lushly forested LaBarque Creek watershed near St. Louis is a model of watershed function. Its 13 square miles of deep, moist canyons conduct more than six miles of

LaBarque Creek, which supports 42 species of fish. Here, many habitat-specific plants thrive, and neotropical migratory birds breed. How does LaBarque resist urban development? Conservation-oriented landowners are the key. Watershed planning efforts, initiated by the Department in cooperation with Jefferson County government, local landowners and many other stakeholders, have yielded a watershed plan, a growing landowner stewardship committee and a Stream Team. These groups have slated several work and cultural events for 2007 and beyond.

MOFEP Update

Timber harvesting compatible with songbird conservation.

Recent Missouri Ozark Forest Ecosystem Project findings should make both forest owners and bird lovers happy.

Research from this 100-year study, begun in 1990, on the impact of various management plans on neotropical migrants indicates that timber harvesting is compatible with migratory songbird conservation.

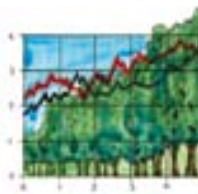


"Our understanding of the effects of management prescriptions will grow as we continue to study them," said David Gwaze, MOFEP's coordinator. For more information, e-mail david.gwaze@mdc.mo.gov, or visit www.missouriconservation.org/7358.

We All Live in a Forest

Growing business: "sinking" carbon

According to scientists, the rise in atmospheric carbon is to blame for global warming. Because the process of photosynthesis captures this heat-trapping gas, forests are among the best carbon "sinks" on the planet—an acre of well-managed forest sequesters about 4 metric tons of carbon annually. After the 1997 Kyoto Protocol called for industrialized nations to cut greenhouse gas emissions, carbon-credit markets emerged, allowing carbon-emitting businesses to buy credits from carbon-sinkers—privately owned forests and prairies, for example. Currently carbon credits sell for \$3.40 per metric ton on the voluntary Chicago Climate Exchange (CCX). They go for around \$30 per metric ton on the international, government-sanctioned European market (EU ETS). Well-managed private forests might deliver benefits globally, as well as locally.





Bradford Farm Field Day

Aug. 25th tours focus on quail management.

Mark your calendar for the University of Missouri's Bradford Research and Extension Center Field Day, Aug. 25 in Columbia. The day's focus will be "Integrating Bobwhite Quail Management With Agriculture," and tour stops will cover topics from quail habitat needs to edge feathering. The program runs from 8 a.m. to noon and is free and open to the public. For directions to Bradford Farm, visit www.aes.missouri.edu/Bradford. For more information, call Tim Reinbott at 573-884-7945 or Bob Pierce at 573-882-4337.



Habitat Helpers for Hire

Find a trained conservation contractor.

Once you and your private land conservationist have developed a long-range management plan, the work gets a little harder—and potentially much more expensive. If not done correctly, your timber stand improvements, invasive plant control and native prairie plantings can fail, costing you more to re-apply treatments. An excellent way to make sure your efforts succeed the first time is to hire a conservation contractor. These trained "habitat helpers" have the skills, experience and equipment to take professional resource management plans and install



individual practices to your satisfaction. Many conservation contractors attend Department of Conservation workshops to learn new techniques and improve their service to landowners. To locate a trained conservation contractor near you, go to www.missouriconservation.org/12342.

Up for review, GRP sustains grasslands, ranches

On the Ground



RANCHING PARTNERS GEORGE Gates and Norman Kanak of Worth County like the Grassland Reserve Program. They enrolled 610 acres of native grassland when it began in 2003. Since then, their GRP contract has provided excellent habitat for many species of grassland wildlife, while helping them keep their operation in the black. "I am elated that the government created a program that rewards grassland farmers and ranchers for keeping highly erodible land in a vegetative state," George said. "This program fits our operation's goal of producing good quality beef on native grasslands." In the last four years, GRP has protected more than 47,000 acres of Missouri grasslands (including 7,000 acres of native prairie) on 400 farms. Congress is reviewing the farm bill, including GRP, this summer. Anyone who cares about Missouri's grassland ecosystems and ranchers has a stake in the outcome. You can track farm bill testimony at www.agriculture.house.gov or www.agriculture.senate.gov.



Two WOW Schools This Fall

Kansas City and Roaring River State Park

Don't let inexperience keep your family from getting outdoors this fall.

Register for one of two upcoming WOW National Outdoor Recreation and Conservation Schools. The first happens at Kansas City's Swope Park, Sept. 21–22. Families will learn a range of outdoor activities, from camping to canoeing. Kids 5 to 8 years old can participate in a special "Kids' Camp." Tents, food, T-shirts, all activities and Saturday's transportation are provided. Cost is \$25 per family of up to six or \$10 per individual. For more information, call 816-759-7305, ext. 2263. The second and largest school happens at Roaring River State Park, Oct. 5–8. This school includes outdoor skills classes for both the novice and the experienced, with a Saturday evening barbecue and auction to benefit future WOW school programs. Call Wonders of Wildlife at 877-245-9453 or visit www.wondersofwildlife.org for further details.



Field Trip Grants

250 schools are awarded more than \$100,000.

In his book, *Last Child in the Woods*, Richard Louv avers that today's children suffer from "nature-deficit disorder."

As an antidote, Missouri Department of Conservation Field Trip Grants help educators get more kids into nature. In 2007, 308 Conservation Field Trip grants totaling \$100,119.85 enabled 250 schools to take students to nature-related locations. In April, Kathy Wray of Archie R-V took her students to Lost Valley Fish Hatchery. "This field trip provided a great learning experience for all!" she said. To apply for 2008 funding, go to www.missouri-conservation.org/8793.

NATURE ACTIVITY

Wildcat Glades Conservation and Audubon Center



IF YOU'VE DREAMED of visiting one of the planet's rarest landscapes, look no further than southwest Missouri. The chert glades of Joplin's Wildcat Park are the last of their kind on earth. This summer, Audubon

Missouri, the City of Joplin and the Missouri Department of Conservation have been hard at work building a new nature center dedicated to conserving them.

Welcome the Wildcat Glades Conservation and Audubon Center to Missouri's collection of nature-education facilities at Groovin' at the Glades on Saturday, Sept. 8. Enjoy exhibits, activities and programs about southwest Missouri's rare and wonderful natural history. These activities are free and open to the public.

Where: Joplin's Wildcat Park

Features: 10,400-square-foot nature center, three classrooms, a large public hall, a network of trails, educational programs, interactive exhibits including a 300-gallon chert glade ecology terrarium and a 1,300-gallon aquarium

Upcoming program: Grand Opening and Groovin' at the Glades Family Day on Saturday, Sept. 8, 10 a.m. to 3 p.m.

For more info: 417-629-3423



Lowland TREASURES

*The wonderful
creatures and features
of bottomland hardwood
forests and swamps.*

BY CAROL DAVIT



Unlike many amphibians that lay their eggs in spring, amphiumas lay up to 200 eggs in early fall on land, usually under a rotten log near water. After water from autumn rains covers the eggs, they complete development and hatch. Within 10 days they've returned to the water, where they will spend the rest of their lives breathing air from the surface with their lungs.

The three-toed amphiuma is one of Andy West's favorite animals. Most Missourians have never seen this secretive eel-like animal, which is North America's largest amphibian, but West has seen several of them in their swamp habitat at Duck Creek Conservation Area near Puxico in southeastern Missouri. "They are one of the coolest animals we have, and they are so well adapted to this swamp community," said West. "It is exciting that we have a viable breeding population of this imperiled species. For me, the amphiumas are a beacon of hope for this area."



Duck Creek Conservation Area

DAVID STONER

West, a wildlife management biologist for the Department of Conservation's southeastern region, along with his colleagues in the Department, at the U.S. Fish and Wildlife Service and with other conservation groups, have a formidable task before them: Restore natural hydrologic conditions to the Mingo Basin Conservation Opportunity Area (COA). "Our goal is to have healthy bottomland forest and wetland communities by reconnecting them to the water patterns that originally sustained them," said West.

Comprised of Mingo National Wildlife Refuge, Duck Creek Conservation Area and private land, the Mingo Basin COA conserves 17,000 acres of bottomland hard-

From a canoe or boat, bottomland forests may look like a uniform wall of green. But in a given river or stream bottom, slight differences in elevation and moisture levels create different bottomland forest types. Ecologists call these types riverfront, wet, wet-mesic and mesic. Each type is important for providing specific habitats.

wood forests and cypress-tupelo swamps. This is the largest remaining tract of bottomland hardwood forest anywhere in the state, and the largest network of bottomland forest, swamps, sloughs and ox-bows in the south-

eastern Missouri lowlands. This area and other remaining bottomland communities throughout the state provide important habitat for a diversity of rare and endangered plants and animals.



DAVID STONNER

LOW, WET BOTTOMLAND HARDWOOD FORESTS

Swales and very wet forests are often cut off from rivers and streams by natural levees created from gravel and silt deposits. Here is where the true hardwoods begin, with trees and other plants that can tolerate frequent, low-energy, backwater flooding and saturated soils. Pin, willow and overcup oaks in the canopy can reach 110 feet, and due to frequent standing water, there isn't much of an understory or plant layer on the ground. In the southeastern lowlands, water oak, pumpkin ash and swamp privet also grow in these forests. When they are dry, wet bottomland forests are open and easy to hike through.

Going...But Not Quite Gone

Since statehood, industrious Missourians have ditched, drained, cleared and plowed most of Missouri's bottomland hardwood forests and many swamps, not just in the southeast but throughout the state, especially in the large floodplains of the Missouri and Mississippi rivers. They deemed the trees too valuable not to cut, and the relatively flat land too rich not to be cleared and cultivated. Bottomland hardwood timber and rich bottomland soil have contributed greatly to Missouri's agricultural economies.

The trade-off has been a dramatic loss of our bottomland hardwood forests and swamps. Once covering an estimated 9 percent, or 4 million acres, of Missouri, we now have only 800,000 acres of bottomland forests. After prairies, swamps of southeastern Missouri are the rarest of all natural communities in the state. The only ones left are those that were too difficult to drain.

Landowners, What You Can Do:

If you are a landowner with existing or historic bottomland hardwood forest or swamps on your property, there are many things you can do to conserve or restore these rare natural communities:

- Enroll acres in the Wetland Reserve Program (WRP) administered by the United States Department of Agriculture. WRP is a cost-share program aimed at restoring former wetland areas on private land. Regional MDC offices can provide more information (See page 3 for phone numbers).
- Protect existing forested corridors along rivers and streams or replant these areas with native bottomland trees. Not only do these forested areas provide habitat for wildlife, but they prevent erosion that could otherwise degrade bottomland forests downstream.
- In the southeastern lowlands, preserve remaining swamps, sloughs and ox-bows.
- Improve habitat for any known or historic populations of animals or plants native to bottomland forests. Regional MDC offices can provide more information.

If You Are Not a Landowner, You Can Still Help:

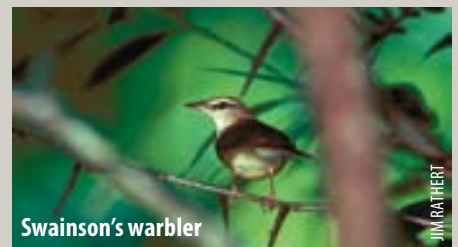
- Get involved with groups that are working to conserve bottomland forests and swamps in Missouri, such as Ducks Unlimited and The Nature Conservancy.
- Participate in the 9th Annual Endangered Species Walk/Run Race, featuring bottomland forests and swamps (see page 20).
- Visit bottomland forests and swamps such as Mingo NWF or Duck Creek CA to learn more about these lowland treasures.



DAVID STONNER

WET-MESIC TO MESIC BOTTOMLAND HARDWOOD FORESTS

This is where the true giants grow. On terraces of streams and river floodplains throughout Missouri, bur, pin and swamp white oaks, pecans and shellbark hickory can grow 140 feet tall. The Nuttall oak, which grows in these forests in the southeastern lowlands, is state-imperiled due to diminishing habitat. At the base of slopes and bluffs, where flooding is rare, the understory and ground layers are developed. These forests are usually carpeted with spring wildflowers like bluebells, blue-eyed Mary and larkspur, and morel patches are often abundant. Pawpaw, spicebush, leatherwood, musclewood and Ohio buckeye are in the understory. Along the Current and Eleven Point rivers, stands of native bamboo, called canebrakes, can also be seen. They provide important habitat for the state-imperiled Swainson's warbler. White oak, sugar maple, bitternut hickory and black walnut are some of the trees in the canopy, and in the Bootheel, sweet gum and swamp chestnut oak can be found. Mesic bottomland hardwood forests are found throughout the state, with the Ozarks having the largest remaining patches.



Swainson's warbler

JIM RATHER



Bluebells

NOPPADOL PAOTHOONG

These natural communities are wealthy not only in extractable resources for people, but in biological diversity. For example, of Missouri's 147 native tree species, 67 are associated with bottomland forests and swamps. Many of these trees are hardwoods, which provide acorns and other important food sources for wildlife. Of Missouri's 19 summer-resident Neotropical warblers, seven use bottomland forests and swamps as their primary breeding habitat. These bottomland communities also provide important habitat for game species like white-tailed deer, turkey and waterfowl.

When we lose these communities, we lose the wild and wonderful creatures that live in them. Ten percent of Missouri's 1,030 species of conservation concern depend on bottomlands for their survival.



DAVID STONER

RIVERFRONT FORESTS

Closest to the water, these forests are typically made up of silver maple, sycamore, box elder and other softwood tree species. Grape vines and other plants that can handle lots of disturbance thrive here. These forests can bear—and depend on—the brunt of flooding. Floodwaters help disperse the floatable seedheads of cottonwoods and silver maples. Flooding stimulates willow and ash trees to produce new, air-filled roots. Riverfront forests often have an “untidy” appearance, with deposits of silt, sand, gravel and driftwood on the forest floor. With the construction of levees, often far inland from riverbanks, many riverfront forests have expanded, growing where bottomland hardwood forests once did.

These species include the alligator gar, which has impressive dual rows of large teeth along its upper jaw. Reaching up to 10 feet in length and weighing up to 300 pounds, this mammoth fish is North America's largest gar. In Missouri, it lives in sluggish backwaters connected to the Mississippi River.

Also of concern are less-imposing animals like the semi-arboreal golden mouse, which builds its nests in bottomland forest trees, using its tail for balance as it travels along vines and branches, and the Rafinesque's big-eared bat, which will roost in the basal hollows of tupelo trees. In addition, biologists have noted the decline of the cerulean warbler, a summer breeder whose *zray-zray-zray-zray-zeeee* song was once commonly heard in Ozark bottomland forests. The cerulean forages for insects and nests high in tree canopies. It inhabits vast tracts of forests with natural gaps, which rivers and streams provide.

A number of unusual lowland plants are also imperiled. They include featherfoil, an aquatic plant with feathery leaves and air-filled stems to keep it upright in water, and corkwood, a small tree forming thickets in swamps and wet bottomlands, whose wood is lighter than cork.

Sustained and Changed by Water

Occurring along rivers and streams throughout the central and southern United States, bottomland hardwood

Kids' Endangered Species Walk/Run Postcard Contest

- Postcards must be received by Oct. 1, 2007. Your design may be no larger than 4 by 6 inches and no smaller than 3.5 by 5 inches, must be on index card stock, and include endangered plants and/or animals found in a bottomland forest or swamp habitat. The backside must include your grade, name and mailing address. Please refer to the Web site below for postcard format details. Schools or groups should submit all postcards in a single envelope using the school address on the back of each postcard. Mail postcards in an envelope to Peggy Horner, MDC, P.O. Box 180, Jefferson City, MO 65109.
- The postcards will be on display at the Missouri Capitol during the week of Oct. 7.
- The best 10 postcards in each of four age classes will be selected before the race, but the final three winners in each age class will be judged by participants of the race on Oct. 13 and announced during the awards ceremony. Winners will receive prizes.
- Postcards can be picked up after the race from 10:30 to 11 a.m. or will be mailed to students who cannot attend the race.

Details of the race, youth teams and postcard contest are available online at www.missouriconservation.org/programs/es_walkrun.



SWAMPS

Missouri's swamps have always been almost completely confined to the southeastern lowlands, an area once covered by about 2.4 million acres of interconnected cypress-tupelo swamps, bottomland hardwood forests, backwater sloughs and ox-bows. The acreage of these natural communities has been greatly reduced, but what remains adds greatly to Missouri's natural diversity and harbors many species of conservation concern. Bald cypress trees—some up to 400 years old—provide habitat for nesting bald eagles and the bald cypress katydid, which lives among its branches. The harmless and seldom-seen western mud snake hides out under logs in shallow swamps and preys upon the completely aquatic western lesser siren and three-toed amphiuma. These snakes will also eat mole salamanders, which take shelter and breed in shallow, fishless bottomland pools and swamp leaf litter. Swamp rabbits are well-adapted to their habitat by being good swimmers. They can escape predators by diving into water and paddling with all four feet. Unfortunately, despite a high reproductive rate, they, like so many other swamp species, are declining due to the rarity of their lowland habitats.



Bald cypress katydid

JIM RATHER



Swamp rabbit

JIM RATHER



Western mud snake

TOM R. JOHNSON



Mole salamander

TOM R. JOHNSON

forests develop from and depend on nutrients brought by floodwaters. For southeastern swamps as well, water is the necessary ingredient of these nearly continuously flooded wetlands dominated by trees.

Once covering large portions of floodplains—from water's edge to bluffs—vast bottomland hardwood forests helped protect water quality by capturing silt and sediment in water and slowing and absorbing floodwaters, which helped to curb erosion downstream. Swamps served as buffers between rivers and permanently dry land, trapping nutrients from water that nourished plants and animals.

Today—especially along big rivers—levees have cut off much of our remaining bottomland forest and swamps from the flooding that was their lifeblood. In other areas, bottomland forests and swamps often receive more water than they can handle as runoff from urbanization and



The western chicken turtle was spotted in Missouri this year, the first time since 2001. Chicken turtles are semi-aquatic and spend nearly as much time on land as in water. They prefer still or slow-moving aquatic habitats, including swamps, river sloughs or oxbow lakes.

2007 Endangered Species Walk/Run Race

New this year: Course certified by U.S. Track and Field and chip timing!

ARE YOU AS QUICK AS A SWAMP RABBIT? Or do you prefer a leisurely pace, like a western chicken turtle? These animals live in bottomland forests and swamps, which is the theme of the 9th Annual Endangered Species Walk/Run Race on Oct. 13. You can help protect Missouri's endangered animals and plants and help keep their habitats healthy by participating in this event. You can run, walk, or even push a baby stroller!

Race proceeds go toward helping endangered species in Missouri. Funds from past races have been used to study rare wetland birds and cave fish, develop techniques to propagate pallid sturgeon, Topeka shiners and rare freshwater mussels for reintroduction efforts, and to create educational materials about the decline of Indiana bats and Ozark hellbenders.

In addition to helping protect Missouri's natural diversity, participants will receive a T-shirt featuring bottomland forests and swamps. Winners will receive medals depicting Missouri endangered species.

This event is hosted by the Missouri departments of Conservation, Natural Resources, and Health and Senior Services, the U.S. Fish and Wildlife Service and Jefferson City Parks, Recreation, and Forestry. Sponsors include ColorGraphic Printing of Springfield, Wal-mart, AmerenUE and the St. Louis Zoo.

Who: Anyone can participate

What: A 10K Run (6.2 miles), 5K Run (3.1 miles) and 5K walk

Where: North Jefferson City Pavilion near the Katy Trail at the intersection of Highways 63 and 54.

When: Saturday, Oct. 13. The walk begins at 8:45 a.m., and the run begins 9 a.m. Pick up race packets (including numbers and chips)

on-site from 8 to 8:45 a.m. Packets also can be picked up on Friday, Oct. 12, 8 a.m. to 3 p.m., at the Missouri Department of Conservation headquarters, 2901 W. Truman Blvd., in Jefferson City

Registration fees (includes long-sleeved T-shirt):

Mail-in, postmarked by Oct. 1: \$22, 15 or older; \$15, 14 or younger.

Mail-in, postmarked after Oct. 1 or day-of-race registration: \$25 (all ages).

Online (fees will go up after Oct. 1): \$20, 15 or older (plus service fee); \$15, 14 or younger (plus service fee).

Youth Teams: The registration fee is \$15 for the entire team (T-shirts not included). A team can be a group of 5 to 10 kids (18 and younger) and must be accompanied by one adult. Team members can sign up for the 5K or 10K run or the 5K walk and do not all have to run or walk the same distance. Team members who want to purchase T-shirts should indicate their size on the Youth Team Registration Form and include \$10 for each shirt. Youth Team Registration forms must be received by Friday, Oct. 7. Team Awards: In addition to receiving team certificates and a gift bag, youth team members are eligible for awards given to the first three male and female finishers in each of the following 5K run and 5K walk divisions: 10 and younger; 11 through 14; and 15 through 19. The 10K run will have one division for all participants who are 19 and younger.

Safety rules: No headphones or pets allowed on the trail. Strollers/joggers are welcome, but they must stay at the end of the lineup at the start of the race.

channelization of streams has created more intensive and prolonged flooding.

In both instances, the makeup of trees and other species in these bottomland communities has changed. Pollutants carried by water, such as pesticide runoff and excessive sediment, also affect the health of bottomland forests and swamp species.

For example, the western chicken turtle is a sight predator, meaning it has to see its prey. But increased sedimentation has made swamp water murky, instead of its natural clear, tannin-stained color, making it hard for this swamp reptile to feed. Populations of swamp fish such as the bantam sunfish and flier are also vulnerable because the clear, quiet, heavily vegetated water they need is rare.

Conserving our Lowland Treasures

In the Mingo Basin COA, Andy West and his colleagues make use of many tools to plan restoration of the area's

bottomland communities. Technology such as remote sensing is used to compare present land contours with maps of pre-drainage topography.

Flying over the area helps as well. "There is still a fingerprint on the land," said West. "From the air, you can see differences in soil color and texture that provide clues to the original configuration of water and land.

"Eventually, we'll use some of the same tools that were used to drain and clear the area—like bulldozers and other heavy machinery—to reshape parts of the land to favor natural water flows," said West. Restoring natural conditions will help with other conservation efforts in the COA, like improving plant species diversity and reestablishing alligator gar.

"Our most important tools, however," said West, "are cooperation and communication with our partners in this area, including our neighbors in agriculture. It is always easier to work with nature rather than against it, and I think by working with nature, we can find restoration solutions that benefit everyone here." ▲



HOW AN OUTDOOR
CLASSROOM TEACHES
SCIENCE, MATH AND
A WHOLE LOT MORE.

Connecting Kids with Nature

BY CAROL MAHAN AND CHRIS SCHMIDGALL, PHOTOS BY DAVID STONNER

You can hear excitement in the students' voices as they explore the outdoors at Truman Elementary School's outdoor classroom, an area named "Truman's Backyard" by the kids themselves.

"Eeek, what's that?"

"Hey, look what I found!"

"This is so cool!"

Truman Elementary School is in Rolla, in the midst of a rapidly growing urban area along the I-44 corridor. Most of these students would have few outdoor nature experiences if it were not for the school's efforts to create and use an outdoor area for learning.

"Nature-Deficit Disorder"

"Children need nature for the healthy development of their senses, and, therefore, for learning and creativity," Richard Louv wrote in his book, *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*.

Kids and nature seem a natural combination, but what seemed like a perfect match a generation ago is not happening today.

There are plenty of reasons why kids are not connecting to nature. Fears about strangers and traffic keep kids indoors. TV and computer screens command their attention. Organized activities and homework leave them little time to explore the outdoors.

"We are often so busy with our own lives that we don't pay attention to what is around us when we go outside," said Shelly Fouke, a teachers' aide at the school. "An outdoor classroom like Truman's Backyard helps us refine our senses and see what is going on around us, above us, and under our feet."

Many Missouri kids learn much of what they know about nature from television. That's why during classroom discussions of snakes, for example, kids are more likely to talk about anacondas and boa constrictors



Sixth-grade students study ecology concepts at Bayless Intermediate School in Olivet, near St. Louis, with the assistance of Conservation Education Consultant David Bruns.

than any of the species native to Missouri. At Truman Elementary School, however, students have actually seen Missouri's snakes, along with Missouri's turtles, snails, bugs and lizards and a variety of other animals.

Recent research shows that outdoor exploration is a necessary component of a healthy childhood. Outdoor activity also can have a calming effect (particularly on those diagnosed with ADHD and other disorders), reduce obesity and relieve pressures that lead to depression.

Building an Outdoor Classroom

Many schools across Missouri have built outdoor classrooms to stimulate learning while developing a love of nature. The students at Truman have taken ownership of their project from the very beginning. They started by having a school-wide election to name their outdoor classroom.

Since then, students have designed and mapped the trails (with the help of the USGS) and named the paths for famous Missourians, Missouri state symbols or famous locations in the state.

On one of the newest trails, Wilder Way, summaries created and illustrated by the students depict stories and the history of Laura Ingalls Wilder, who wrote the "Little House" series of

books while living in Mansfield.

The area's 1-acre prairie was cleared of trees, and the students planted it one cupful at a time. Students also improved the forest and school grounds by selecting and hand-planting tree species that benefit wildlife.

"If you take care of your plants, the animals can have good habitat and will come in your yard," a student said.

Connecting the Outside With the Inside

The faculty at Truman Elementary School eagerly jumped on board. They developed curricula for outdoor classroom workshops that are tied to the state's grade-level expectations. Three of the newest faculty-designed projects at Truman's Backyard include a decomposing log, a food chain/web weaving game and a life-cycle table.

Learning outdoors helps students gain a better understanding of the natural world and score higher on state achievement tests.

"The outcome is better than in a regular classroom," reports third-grade teacher Joyce Knapp. "With some children you just lose their attention in the regular classroom, but the outdoor classroom picks them up. They are sensory-awakened, and they have better carry-over of the concept being taught."

Teachers use Truman's Backyard as a place for students to study landforms, measure distances, observe plant roots, stems and leaves, practice mapping skills by finding cardinal directions on the compass rose and create and interpret maps.

Experiences in the Backyard also serve as inspiration for writing and reading. One budding author said, "We got to go on a hunt, and then we got to write about it!"

The outdoor classroom also helps with discipline. "Students maintain their high interest in the activity and are motivated to do well so they can go again to the outdoor classroom,"



explains Tonya Lewis, second-grade teacher. Other teachers note that students' behavior is improved even hours after returning indoors.

Beyond the Classroom

An after-school enrichment program, the Outdoor Kid Environmental Club, helps students learn about wildlife sustainability while maintaining the forest, wetland and prairie ecosystems found there. The club promotes the development of a sense of stewardship and responsibility in the children.

Olivia, a member for three years, said, "It was quite amazing to learn how the animals react to their habitat and the things we do to help them feel right at home."

Many students and their families also participate in Annual Fall Family Work Days. During last fall's event, 75 parents and students worked on the trails, improved the forest, posted interpretive signs, collected data on wildlife and performed other activities that helped keep the Backyard in good condition for use by the classes.

One parent, marveling at the special outdoor classroom, said, "I wish I could be a student again!"

Students Think It's Cool

James said, "It was cool when we rolled over a dead log and saw bugs like roly pollies and spiders." Maggie found it interesting that when the prairie was burnt, mouse trails became visible.

"I really thought about how mice need to get away from predators, and how the tall grasses and flowers helped them to hide," she said.

At Truman's Backyard, students learn an extra set of three Rs. They learn responsibility,



respect and reconnection. They learn responsibility by taking care of the outdoor classroom and planning for its development.

Students gain respect for nature as teachers instill in them the notion that a visit to the outdoor classroom is a visit to the home of the plants and animals that live there.

Reconnection with nature is the natural result of the kids learning about Missouri's habitat and wildlife.

School Principal John Edgar said, "With countless hours spent learning and working in the outdoor classroom, students have ownership. This ownership fosters pride, and learning reaches a higher level."

Outdoor classrooms can have a profound impact on the lives of children. They develop appreciation for the natural world around them, they build character, and they help turn our youngest citizens into responsible stewards of our natural resources. ▲

Second-graders at Truman Elementary in Rolla engage in a treasure hunt activity in their extensive outdoor classroom.

Outdoor Classroom Grants

The Missouri Department of Conservation and the Missouri Conservation Heritage Foundation have teamed up to provide grant money to schools for developing and using outdoor classrooms.

Grant money has been used for building bird feeders, planting hummingbird gardens and prairies, constructing trails, installing interpretive signs, creating rain gardens and much more. The grant application encourages the involvement of students and community groups in all aspects of developing, planning, maintaining and using the outdoor area. A clear connection with the curriculum also must be demonstrated.

Tree seedlings are available free of charge for planting on school grounds. Schools should contact their education consultant for a list of species and ordering information.

If your school needs assistance in applying for the grant or developing and using an outdoor classroom, contact the conservation education consultant for your area, or Regina Knauer, 573-522-4115, Regina.Knauer@mdc.mo.gov.



'Twas the Night Before Hunting Season

*Hunting is as exciting as a holiday,
but we have to act responsibly to
protect ourselves and our sport.*

by Warren Rose

Growing up on a small farm in southwest Missouri and coming from a family whose roots are deeply embedded in the tradition of hunting, I was more excited the night before hunting season began than I was on Christmas Eve. I would toss and turn amid visions of big bucks or strutting turkeys for what seemed like hours. Just about the time I would fall into a deep sleep, Dad would wake me up saying, "Come on, Son, it's time to go."

The fire that kept me awake as a 9-year-old still burns just as bright today, 30 years later. What has changed, however, is that I've come to appreciate how hunting gives me the opportunity to share outdoor adventures with the people who mean the most to me.

Because I value hunting so much, I take precautions to protect it, and I hope other hunters will, too. All of us who take part in this time-honored practice can help ensure that the tradition of hunting will be passed on to future generations by being responsible hunters and following a certain code of ethics.

Combine legwork with quality maps for the most effective scouting.

Respecting Landowners

Trespassing is landowners' biggest complaint when it comes to hunting. All it takes is one bad experience for landowners to take their property off the list of possible places to go hunting, ruining it for everyone.

Always seek permission before hunting another person's property, and don't wait until the last minute. A county plat map, available at most county courthouses, can help you determine who owns property in the area you'd like to hunt.

Showing up at a landowner's front door on opening day wearing your

camo and carrying your rifle or bow to ask a landowner if you can hunt his or her property is like showing up in a tux on prom night to ask a gal for a date.

Make your visit months before the season begins and do it during a time of day when you won't be interrupting dinner or getting someone out of bed. You may strike out more times than not, but sooner or later you're going to hit pay dirt in the form of a honey of a hunting spot.

A good way to get access to private property is to ask about furbearer hunting or trapping. Few farmers wish they had more coyotes on their place. While a landowner may be hesitant to let a stranger hunt deer or turkey, a good way for a property-owner to get to know you better is to offer to help thin out the predator population. It just might lead to some other opportunities.

Getting permission from the landowner doesn't mean you have free reign of the place. It's your responsibility to find out from the owner exactly where on the property you can hunt and where you can't.

Farmers usually ask me to leave my truck parked near a gate and walk in to keep me from making ruts across muddy fields. I've found this practice helps me, too, because I don't scare game while driving in.

Also, make a point of learning the location of the property's boundaries. The last thing a landowner wants is a neighbor who is upset because a hunter who had permission to hunt one property trespassed on another.

Generally, if you take the time to understand things from the landowner's point of view, and in your manner and behavior show your appreciation for being able to hunt private property, you have a good chance at having a hunting spot for many years to come.

Doing Your Homework

Once you have a place to hunt—public or private—it's time to do that all-important pre-season scouting. One of the best ways to learn the lay of the land is to strap on your boots for a first hand look.

Today's technology can also help you gain a better picture of the property. If you're hunting conservation areas, visit www.missouriconservation.org or stop by your local Conservation Department office to pick up free maps.



NOPPADOL PAOTHONG





For public or private land, detailed topographical maps (available for a nominal fee from the U.S. Geological Service at www.usgs.gov) can show landforms and vegetation that tend to funnel moving deer or rivers and streams that attract roosting turkeys. Aerial photos like the ones provided by www.earth.google.com are another valuable tool hunters can use to scout an area without leaving home.

Staying on Target

Hunters have a responsibility to the sport and to the game they're after to hone their shooting skills. Grabbing your rifle or bow and shooting a few times the week or so before the season starts is probably not enough to stay sharp. By spending time at the shooting range throughout the year, your marksmanship will improve, and you'll increase your chances of filling your permit during the hunting season.

One tip that's always helped me harvest game quickly and cleanly is to always try to stop my quarry before taking a shot. It's easier to hit a standing target than a moving one. Grunt to stop a deer for a broadside shot or emit a soft cluck on a mouth call to get a turkey to come out of strut. Make sure you're ready to take the shot, however, because these wild critters aren't going to stand there and offer a good shot for long.

Be Safe

Each year, falling from tree stands is the largest cause of hunter injuries. Double-check to make sure your stand is secure and always wear a safety harness when you're in a tree.

When temperatures are 100 degrees in August or near zero in January, most people aren't thinking about taking a hunter education class, but they should. Summer and winter months are great times to enroll because there are usually plenty of openings. Taking classes in the off-season also frees you up for scouting during the prime months of fall and spring.

Hunter safety isn't something that ends once you receive your certificate and head to the field. It should become a way of life through your words as well as your actions.

This year the Missouri Department of Conservation is celebrating 50 years of Hunter Education. Since 1957 the number of hunters has increased while the number of accidents has

Purple Paint Law

The purple paint law allows landowners to mark their property against trespass by placing readily visible purple paint marks on trees or posts around their property boundaries.

Vertical marks are to be placed no more than 100 feet apart, and each mark must be at least 8 inches long. The bottom of the mark should be no less than 3 feet, but not more than 5 feet above the ground.

"Property so posted," the law reads, "is to be considered posted for all purposes, and any unauthorized entry upon the property is trespass in the first degree, and a class B misdemeanor."

Trespassing on any private property, whether posted or not, is illegal, but trespassing on posted property is a more serious offense.

Hunters, anglers and hikers should be on the alert for purple paint markings and should always ask permission of landowners before venturing onto private property.

decreased. For this improved safety record, we can thank the thousands of volunteer instructors who have donated millions of hours over the last half-century to the sport they care so deeply about. They've made hunting safer for all of us.

If we treat hunting as a year-round privilege and responsibility rather than just a fun way to fill up a couple of weekends, we will help to ensure that future generations of hunters will have the chance to experience pre-opening daydreams that include big bucks and strutting toms. ▲



Hunters have a responsibility to hone their skills and take game in a safe and ethical manner.

Hunting and Fishing Calendar

FISHING

	OPEN	CLOSE
Black Bass (certain Ozark streams, see the <i>Wildlife Code</i>)	5/26/07	2/29/08
impoundments and other streams year-round		
Bullfrog	Sunset	Midnight
	6/30/07	10/31/07
Gigging nongame fish	9/15/07	1/31/08
Trout Parks	3/1/07	10/31/07

HUNTING

	OPEN	CLOSE
Common Snipe	9/1/07	12/16/07
Coyotes	5/7/07	3/31/08
Crow	11/1/07	3/3/08
Deer		
Archery	9/15/07	11/9/07
	11/21/07	1/15/08
Firearms		
Urban Counties (antlerless only)	10/5/07	10/8/07
Youth	10/27/07	10/28/07
November Portion	11/10/07	11/20/07
Muzzleloader	11/23/07	12/2/07
Antlerless	12/8/07	12/16/07
Dove	9/1/07	11/9/07
Furbearers	11/15/07	1/31/08
Groundhog	5/7/07	12/15/07
Pheasants		
North Zone	11/1/07	1/15/08
South Zone	12/1/07	12/12/07
Youth (north zone only)	10/27/07	10/28/07
Quail	11/1/07	1/15/08
Youth (statewide)	10/27/07	10/28/07
Rabbits	10/1/07	2/15/08
Ruffed Grouse	10/15/07	1/15/08
Sora and Virginia Rails	9/1/07	11/9/07
Squirrels	5/26/07	2/15/08
Teal	9/8/07	9/23/07
Turkey		
Fall Archery	9/15/07	11/9/07
	11/21/07	1/15/08
Fall Firearms	10/1/07	10/31/07
Woodcock	10/15/07	11/28/07

TRAPPING

	OPEN	CLOSE
Beaver and Nutria	11/15/07	3/31/08
Furbearers	11/15/07	1/31/08
Otters and Muskrats	11/15/07	see <i>Wildlife Code</i>

For complete information about seasons, limits, methods and restrictions, consult the *Wildlife Code* and the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, the *Fall Deer and Turkey Hunting Regulations and Information*, the *Waterfowl Hunting Digest* and the *Migratory Bird Hunting Digest*. For more information visit www.missouriconservation.org/8707 or permit vendors.

The Department of Conservation's computerized point-of-sale system allows you to purchase or replace your permits through local vendors or by phone. The toll-free number is 800-392-4115. Allow 10 days for delivery of telephone purchases. To purchase permits online go to www.wildlifelicense.com/mo/.



"They've got bigger brains, greater girth, larger territories, longer life spans. On the other hand, we don't spend our free time mowing the lawn."

Contributors



CAROL DAVIT is a writer and editor living in Jefferson City. She returned to Missouri in 2006, after four and a half years of living in Roanoke, Va., where she worked promoting environmental programs and services. She enjoys exploring Missouri's natural communities with her husband, Mike, and young son, Jamie.

CAROL MAHAN is the conservation education consultant for Truman Elementary in Rolla and other schools in the northern Ozarks region. A former teacher from Illinois, Carol appreciates the wealth and diversity of natural resources in Missouri. She spends her free time running, hiking and reading.



CHRIS SCHMIDGALL is an educator and outdoor classroom coordinator at Truman Elementary in Rolla. Her passion for hands-on learning in the outdoors led her to establish an outdoor classroom center and an active after-school environmental club. She and her husband, Gary, enjoy kayaking the beautiful rivers of Missouri.

WARREN ROSE is the Outreach and Education regional supervisor in SW Missouri. He lives in Springfield with his wife, Sherri, and their son, Nicholas. Warren has worked for the Department for five years and is a life long avid outdoorsman. He enjoys hunting and sharing outdoor traditions with family and friends.



TIME CAPSULE

August 1987

In *Least Tern Challenged to Survive*, author John W. Smith reminds readers that, "Endangered means there's still time." The article highlights the least tern and the measures taken by the Department of Conservation, the U.S. Fish and Wildlife Service and other organizations to monitor and improve the status of this endangered species. There are five different terns that regularly visit Missouri's rivers, marshes and lakes: Forster's, common, black, Caspian and least. However, the first four occur only during migration. The least tern, robin-sized and the smallest of the five species, is the only tern that nests in Missouri. Terns are usually considered seabirds, though on the whole they are less marine in habit than their close relatives, the gulls.—*Contributed by the Circulation staff*



AGENT NOTES

Conservation partnership helps Scouts manage resources.

CONSERVATION AGENTS NOT only enforce the Missouri Wildlife Code, they also conduct educational programs, work with private landowners to restore and manage wildlife habitat and gather wildlife population data. However, our most rewarding work occurs when, in the course of building a partnership with another conservation-minded group or organization, we also help young people get excited about the work of conservation.

That's happening right now at the H. Roe Bartle Scout Reservation near Osceola. The Heart of America Scout Council has joined efforts with the Conservation Department to manage the resources on nearly 4,000 acres at the camp. Conservation programs at Bartle include glade and savanna restoration, tree planting, hunter education, Truman Lake crappie habitat enhancement and an annual No MOre Trash! event. The camp also hosts a Family Outdoor Skills Camp and a youth deer hunt. These events are aimed at deaf or hard-of-hearing children, who may have limited conservation opportunities.

This partnership allows the 10,000 scouts and visitors who annually camp at the facility to gain hands-on experience with conservation, and it helps ensure the continuation of sound conservation practices for the next generation.



Dennis Garrison is the conservation agent for St. Clair County, which is in the Kansas City region. If you would like to contact the agent for your county, phone your regional Conservation office listed on page 3.

behind the CODE

Resident lifetime permits prove a bargain.

BY TOM Cwynar

The Conservation Department first offered Resident Lifetime Fishing Permits and Resident Lifetime Small Game Hunting Permits in 1996. A Resident Lifetime Conservation Partner Permit combines the privileges of both.

It's easy to judge the investment quality of lifetime permits. The fishing permit, for example, saves you \$19 in annual permit fees (\$12 resident fishing permit and \$7 trout permit).



The small game hunting permit saves you \$16 in annual permit fees (\$10 small game permit and \$6 state migratory bird hunting permit).

An age-based price structure makes the permits a bargain at various stages of life. The most savings occur for youths age 15 and younger. A Resident Lifetime Conservation Partner Permit purchased by or for a 16-year-old, for example, would equal a savings of \$1,165 over the cost of the annual permits purchased separately by the time they reached age 64. If permit prices go up, savings increase. If holders move to another state, the permits are still valid for fishing or small-game hunting in Missouri.

Giving a lifetime permit to a child paves the way to a lifetime of outdoor recreation. Owning a lifetime permit demonstrates strong support for conservation efforts and a lifelong commitment to our outdoor heritage. For permit cost information and permit applications, visit your local Conservation Department office or download from www.missouriconservation.org/8849.

“I AM THE NEXT GENERATION OF CONSERVATION”

Ora Payne of the Kansas City area has been an avid gardener for more than 20 years. She grows both flowers and vegetables in her garden and maintains her compost and mulch bins. She says she looks forward to visiting her garden and gets excited to see what nature is doing from day to day. She always grows enough to share. To learn more about conservation activities, visit www.missouriconservation.org—PHOTO BY DAVID STONNER



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